

Claims

1. An adjustment device for adjusting the position of at least one cutter (S; S1, S2) of a fine machining tool, particularly a reamer, with respect to a cutter support (ST; 1; 100; 200; 300; 6; 506), characterized in that

the cutter support (ST; 1; 100; 200; 300; 6; 506; 606) borders [alternative: delimits] at least one pressure chamber (DK; DK1; DK2; 4; 104; 204; 304; 404; 504; 604) which is arranged in the adjustment direction (R; R1, R2) of the cutter (S; S1, S2) with a displacement with respect to it and which is filled with a pressure means which can be placed under pressure with a pressure generation device, wherein

between the cutter (S; S1, S2) and the pressure chamber (DK; DK1; DK2; 4; 104; 204; 304; 404; 504; 604), a cutter support wall (W) remains which is elastically deformable upon application of pressure by the pressure transfer means to adjust the cutter position.

2. The adjustment device according to claim 1, characterized in that the cutter (S; S1, S2) and the pressure chamber (DK; DK1; DK2; 4; 104; 204; 304; 404; 504; 604) are arranged in alignment in the adjustment direction (R; R1, R2).

2. The adjustment device according to claim 1, characterized in that the length (LD) of the pressure chamber (DK; DK1, DK2) in the orthogonal direction to the adjustment direction (R; R1, R2) corresponds essentially to the length (LS) of the cutter (S).

3. The adjustment device according to claim 1, characterized in that the length of the pressure chamber (4; 104; 204; 304; 404; 504; 604) in the orthogonal direction to the adjustment direction (R; R1, R2) is limited to the region of the tool corner.
- 5 4. The adjustment device according to one of the preceding claims, characterized in that the elastic deformation (dK) between the pressure chamber (DK) and the cutter (S) lies in the size range of the cutter adjustment (dS).
- 10 5. The adjustment device according to one of the preceding claims, characterized in that the pressure transfer means is an at least approximately incompressible fluid.
6. The adjustment device according to one of the claims 1 to 4, characterized in that the pressure transfer means is a plastic bush which is usable [insertable] in the pressure chamber.
- 15 7. The adjustment device according to one of the preceding claims, characterized in that the pressure generation device includes a screw which can be screwed into a blind threaded hole (10; 210; 211; 310; 410).
- 20 8. The adjustment device according to claim 7, characterized in that the blind threaded hole is separated by an axial distance from the pressure chamber (4; 104; 204; 304; 404; 504) and is connected to it via connecting channels (20; 120; 220; 221; 320; 420).
9. The adjustment device according to claim 7 or 8, characterized by a characteristic diagram which provides a predetermined relationship between an input quantity of the pressure

generation device (10; 210, 211; 310; 410) and the resulting positional adjustment (dS) of the cutter.

5 10. The adjustment device according to one of the preceding claims, characterized in that the position of the cutter (S; S1, S2) is adjustable in the radial direction.

11. The adjustment device according to one of the preceding claims, characterized in that the pressure chamber (4; 304; 404; 504; 604) is formed with a ring shape.

10 12. The adjustment device according to one of the claims 1 to 10, characterized in that the extension of the pressure chamber (104; 204) is limited in the circumferential direction locally to the region of the cutter (S).

15 13. The adjustment device according to one of the claims 1 to 12, characterized in that the cutter support is a tool mounting basic element (300).

20 14. The adjustment device according to one of the claims 1 to 12, characterized in that the cutter support is a ring (6; 506; 606) which can be slid onto a tool mounting basic element (400; 500), particularly a tool clamping mandrel or a clamping mandrel / clamping chuck combination (400; 500).

25 15. The adjustment device according to claim 14, characterized in that an attachment (14; 16) of the cutter support ring (6; 506; 606) on the basic element (400; 500) is provided, particularly by means of solder accommodated in circumferential grooves (14).

16. The adjustment device according to claim 14 or 15, characterized in that the pressure chamber (606) is molded entirely into the cutter support ring (606), the pressure chamber (606) being fillable via connecting channels (620) with the pressure transfer means.

5 17. The adjustment device according to claim 14 or 15, characterized in that the pressure chamber (6; 506) is bounded by basic element (1; 2) and cutter support ring (6;7) applied thereupon and a gap between basic element and slid-on cutter support ring (6; 506) is sealed against leakage of the pressure transfer means (40, 30; 15).

10 18. An adjustment device, particularly for a step fine machining tool, according to one of the claims 13 to 17, characterized in that the tool mounting basic element (400; 500) has an additional central tool holder (12) with an assigned expansion chuck (8, 18).

15 19. The adjustment device according to claim 18, characterized in that the pressure chamber of the adjustment device serves at the same time as a pressure chamber of the expansion chuck.

20 20. The adjustment device according to claim 18, characterized in that the adjustment device and the expansion chuck have separate pressure chambers (17, 304; 18, 504) which have a pressure coupling (320, 321; 19).

21. The adjustment device according to claim 18, characterized in that the adjustment device and the expansion chuck have separate pressure chambers (18, 404) which can be placed under pressure independently of one another.

22. A fine machining tool, particularly a reamer, characterized by an adjustment device according to one of the preceding claims.